Appl. No. : 09/489,588
Filed : January 21, 2000

AMENDMENTS TO THE CLAIMS

1-28. (Cancelled)

29. (Currently amended) ~~The biological fluid measuring device of claim 1~~ A device for measuring glucose in a biological fluid, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operatively connected to said electronic circuit; and

b) a sensor operably connected to said electrodes of said housing, said sensor comprising an apparatus for determining the amount of glucose in a biological sample, said glucose determining apparatus operably associated with said electrodes and comprising a membrane impregnated with an oxidase, a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane positioned more distal to said housing than said oxidase impregnated membrane, and an angiogenic layer, said angiogenic layer positioned more distal to said housing than said bioprotective membrane, wherein said sensor protrudes from said housing.

30. (Currently amended) The biological fluid measuring device of claim ~~1~~ 29, wherein the sensor further comprises a sensor interface dome.

31. (Currently amended) The biological fluid measuring device of claim ~~1~~ 29, wherein said membrane impregnated with oxidase comprises a resistance layer, an enzyme layer, an interference layer and an electrolyte layer.

32. (Currently amended) The biological fluid measuring device of claim ~~4~~ 31, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

33. (Currently amended) The biological fluid measuring device of claim ~~4~~ 31, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

34. (Currently amended) The biological fluid measuring device of claim ~~4~~ 31, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

35. (Currently amended) The biological fluid measuring device of claim ~~4~~ 31, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

Appl. No. : **09/489,588**
Filed : **January 21, 2000**

8 36. (Currently amended) The biological fluid measuring device of claim ~~8~~ 35, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

9 37. (Currently amended) The biological fluid measuring device of claim ~~1~~ 29, wherein said bioprotective membrane comprises ~~at least one of~~ polypropylene, ~~or~~ polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

10 38. (Currently amended) The biological fluid measuring device of claim ~~1~~ 29, wherein said bioprotective membrane further comprises pores having a diameter of about 0.4 μm.

11 39. (Currently amended) The biological fluid measuring device of claim ~~1~~ 29, wherein said angiogenic layer is selected from the group consisting of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

12 40. (Currently amended) The biological fluid measuring device of claim ~~1~~ 29, further comprising c) a securing element for securing said device to biological tissue, said securing element composed of a material selected from the group consisting of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

13 41. (Currently amended) The biological fluid measuring device of claim ~~13~~ 40, wherein said securing element comprises a polyester velour.

14 42. (Currently amended) The biological fluid measuring device of claim ~~1~~ 29, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

43. (Cancelled)

32 44. (Currently Amended) An implantable glucose monitoring device of claim ~~43~~ 47, wherein said bioprotective membrane comprises pores, said pores having diameters ranging from about 0.1 micron to about 1.0 micron.

33 45. (Currently Amended) An implantable glucose monitoring device of claim ~~43~~ 47, wherein said bioprotective membrane comprises polytetrafluoroethylene.

46. (Cancelled)

31 47. (Currently amended) ~~An implantable glucose monitoring device of claim 46~~ A wholly implantable glucose monitoring device, comprising:

a) a housing of size and configuration for whole implantation into a host; and

43

b) a sensor supported by said housing for communication with tissue of said host, said sensor comprising (i) a member for determining the amount of glucose in biological fluid of said host, and (ii) a bioprotective member disposed more distal to said housing than said glucose determining member and comprising a bioprotective membrane that is substantially impermeable to macrophages and permeable to glucose and oxygen; and

c) a member for securing the device to biological tissue of said host, said securing member cooperatively associated with said housing, and wherein said securing member comprises poly(ethylene terephthalate).

~~48~~ 34. (Currently amended) An implantable glucose monitoring device of Claim ~~43~~ 47, wherein said glucose determining member comprises a membrane containing glucose oxidase, said glucose oxidase-containing membrane positioned more proximal to said housing than said bioprotective member.

~~49~~ 43. (Currently amended) An implantable glucose monitoring device of Claim ~~43~~ 47, wherein said device further comprises at least two electrodes supported by said housing and operably connected to said sensor.

~~50~~ 44. (Previously presented) An implantable glucose monitoring device of Claim ~~49~~ 43, wherein said device further comprises electronic circuitry operably connected to at least one of said electrodes and adapted for long-term operation.

~~51~~ 48. (Currently amended) An implantable glucose monitoring device of claim ~~43~~ 47, said housing ~~including~~ comprising a cavity contained therewithin.

~~52~~ 49. (Previously presented) An implantable glucose monitoring device of claim ~~51~~ 48, wherein said sensor is within said housing cavity.

53. (Cancelled).

~~54~~ 64. (Currently amended) The biological fluid measuring device of claim ~~53~~ 57, wherein said bioprotective membrane is substantially impermeable to macrophages.

~~55~~ 65. (Currently amended) The biological fluid measuring devise of claim ~~53~~ 57, wherein said bioprotective membrane comprises pores, said pores having diameters ranging from about 0.1 micron to about 1.0 micron.

~~56~~ 66. (Currently amended) The biological fluid measuring device of claim ~~53~~ 57, wherein said bioprotective membrane comprises polytetrafluoroethylene.

Appl. No. : 09/489,588
Filed : January 21, 2000

463 57. (Currently amended) ~~The biological fluid measuring device of claim 53~~ A biological fluid measuring device, comprising:

(a) a housing comprising an electronic circuit and at least two electrodes operably connected to said electronic circuit; and

(b) a sensor operably connected to said electrodes of said housing, said sensor comprising (i) a bioprotective membrane, and (ii) an angiogenic layer, said angiogenic layer positioned more distal to said housing than said bioprotective membrane, wherein said angiogenic layer comprises polytetrafluoroethylene.

67 74 58. (Currently amended) The biological fluid measuring device of claim ~~53~~ 57, further comprising (c) a member for securing said device to biological tissue, and securing member associated with said housing.

68 ~~60~~ 59. (Previously presented) The biological fluid measuring device of claim 58, wherein said securing member comprises poly(ethylene terephthalate).

69 ~~65~~ 60. (Currently amended) The biological fluid measuring device of claim ~~53~~ 57, wherein said sensor further comprises a member for determining the amount of glucose in a biological sample.

70 ~~66~~ 61. (Previously presented) The biological fluid measuring device of claim 60, wherein said glucose determining member comprises a membrane containing glucose oxidase, said glucose oxidase-containing membrane positioned more proximal to said housing than said bioprotective membrane.

81 ~~67~~ 62. (Currently amended) The biological fluid measuring device of claim ~~53~~ 57, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

63. (Cancelled)

93 ~~64~~. (Currently amended) The device of claim ~~63~~ 66, wherein said wholly implantable device is sized and configured for being wholly implanted subcutaneously.

65. (Cancelled)

94 ~~66~~. (Currently amended) ~~The device of claim 65,~~ A device for measuring glucose in a tissue of a host comprising:

a wholly implantable device comprising a sensor having an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted

47

for substantial fixation of said tip in a foreign body capsule, wherein said sensor tip fixation domain comprises a capsular attachment layer on said sensor, and wherein said sensor tip fixation domain further comprises an angiogenic layer on said sensor.

67. (Cancelled) 94

96 68. (Currently amended) The device of claim ~~67~~ 66, wherein said ~~non-smooth layer includes~~ capsular attachment layer comprises surgical grade polyester velour.

69. (Cancelled)

129 70. (Currently amended) ~~The device of claim 69~~ An implantable device for subcutaneous monitoring of glucose levels, comprising a housing and a sensor comprising an angiogenic layer for promoting adequate microcirculatory delivery of glucose and oxygen to said sensor, wherein said sensor further ~~includes~~ comprises a capsular attachment layer.

130 71. (Currently amended) The device of claim ~~69~~ 70, 129 wherein said implantable device is sized and configured for being wholly implanted subcutaneously.

15 72. (New) The device of claim 29, 1 wherein said sensor comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

16 73. (New) The device of claim ~~72~~, 15 wherein said wherein said sensor tip fixation domain further comprises a capsular attachment layer.

17 74. (New) The device of claim ~~73~~, 16 wherein said capsular attachment layer comprises a porous implantable material.

18 75. (New) The device of claim ~~73~~, 16 wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

19 76. (New) The device of claim ~~73~~, 16 wherein said capsular attachment layer comprises surgical grade polyester velour.

20 77. (New) The device of claim 29, 1 wherein said bioprotective membrane comprises polytetrafluoroethylene.

21 78. (New) The device of claim ~~29~~, 1 wherein said angiogenic membrane comprises polytetrafluoroethylene.

22 79. (New) The device of claim ~~29~~, 1 wherein said bioprotective membrane and said angiogenic layer are formed from a polytetrafluoroethylene.

48

D

Appl. No. : **09/489,588**
Filed : **January 21, 2000**

23 ~~80.~~ (New) The device of claim ~~29~~ 1, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

24 ~~81.~~ (New) The device of claim ~~29~~ 1, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

25 ~~82.~~ (New) The device of claim ~~29~~ 1, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for continuous, long-term operation.

26 ~~83.~~ (New) The device of claim ~~29~~ 1, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

27 ~~84.~~ (New) The device of claim ~~83~~ 26, wherein said data transmitting apparatus comprises radiotelemetry.

28 ~~85.~~ (New) The device of claim ~~29~~ 1, wherein said device is wholly implantable.

29 ~~86.~~ (New) The device of claim ~~85~~ 28, wherein said device is sized and configured for being wholly implantable subcutaneously.

30 ~~87.~~ (New) The device of claim ~~29~~ 1, wherein said housing is substantially oval-shaped.

161 ~~88.~~ (New) A device for measuring glucose in a biological fluid, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operatively connected to said electronic circuit; and

b) a sensor operably connected to said electrodes of said housing, said sensor comprising an apparatus for determining the amount of glucose in a biological sample, said glucose determining apparatus operably associated with said electrodes and comprising a membrane impregnated with an oxidase, a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane positioned more distal to said housing than said oxidase impregnated membrane, and an angiogenic layer positioned more distal to said housing than said bioprotective membrane, wherein the sensor further comprises a sensor interface dome.

162 ~~89.~~ (New) The device of claim ~~88~~ 161, further comprising c) a securing element for securing said device to biological tissue.

163 ~~90.~~ (New) The device of claim ~~89~~ 162, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

D

Appl. No. : 09/489,588
Filed : January 21, 2000

164 91. (New) The device of claim 89, wherein said securing element comprises a polyester velour.

165 92. (New) The device of claim 88, wherein said sensor interface dome comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

166 93. (New) The device of claim 92, wherein said wherein said fixation domain further comprises a capsular attachment layer.

167 94. (New) The device of claim 93, wherein said capsular attachment layer comprises a porous implantable material.

168 95. (New) The device of claim 93, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

169 96. (New) The device of claim 95, wherein said capsular attachment layer comprises surgical grade polyester velour.

170 97. (New) The device of claim 88, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, and mixed cellulose esters.

171 98. (New) The device of claim 88, wherein said angiogenic layer comprises one of polyvinyl chloride, polypropylene, polysulphone, and polymethacrylate.

172 99. (New) The device of claim 88, wherein said bioprotective membrane comprises polytetrafluoroethylene.

173 100. (New) The device of claim 88, wherein said angiogenic layer comprises polytetrafluoroethylene.

174 101. (New) The device of claim 88, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

175 102. (New) The device of claim 88, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

176 103. (New) The device of claim 88, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

177 104. (New) The device of claim 88, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

50

D

Appl. No. : 09/489,588
Filed : January 21, 2000

178 161
~~105~~. (New) The device of claim ~~88~~, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

179 161
~~106~~. (New) The device of claim ~~88~~, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

180 179
~~107~~. (New) The device of claim ~~106~~, wherein said resistance layer restricts the transport of glucose therethrough.

181 179
~~108~~. (New) The device of claim ~~106~~, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

182 179
~~109~~. (New) The device of claim ~~106~~, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

183 179
~~110~~. (New) The device of claim ~~106~~, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

184 179
~~111~~. (New) The device of claim ~~106~~, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

185 184
~~112~~. (New) The device of claim ~~111~~, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

186 179
~~113~~. (New) The device of claim ~~106~~, wherein said enzyme layer contains glucose oxidase.

187 161
~~114~~. (New) The device of claim ~~88~~, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

188 161
~~115~~. (New) The device of claim ~~88~~, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

189 161
~~116~~. (New) The device of claim ~~88~~, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

190 189
~~117~~. (New) The device of claim ~~116~~, wherein said data transmitting apparatus comprises radiotelemetry.

191 161
~~118~~. (New) The device of claim ~~88~~, wherein said device is wholly implantable.

51

D

192 119. (New) The device of claim 191 118, wherein said device is sized and configured for being wholly implantable subcutaneously.

193 120. (New) The device of claim 161 88, wherein said housing is substantially oval-shaped.

194 121. (New) The device of claim 161 88, wherein said sensor interface dome protrudes from said housing.

195 122. (New) A device for measuring glucose in a biological fluid, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operatively connected to said electronic circuit; and

b) a sensor operably connected to said electrodes of said housing, said sensor comprising an apparatus for determining the amount of glucose in a biological sample, said glucose determining apparatus operably associated with said electrodes and comprising a membrane impregnated with an oxidase, a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane positioned more distal to said housing than said oxidase impregnated membrane, and an angiogenic layer positioned more distal to said housing than said bioprotective membrane, wherein said membrane impregnated with oxidase comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

196 123. (New) The device of claim 195 122, further comprising c) a securing element for securing said device to biological tissue.

197 124. (New) The device of claim 196 123, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

198 125. (New) The device of claim 196 123, wherein said securing element comprises a polyester velour.

199 126. (New) The device of claim 196 125, wherein said sensor ~~interface dome~~ comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

200 127. (New) The device of claim 199 126, wherein said wherein said fixation domain further comprises a capsular attachment layer.

201 128. (New) The device of claim 200 127, wherein said capsular attachment layer comprises a porous implantable material.

52

D

202 ~~129~~. (New) The device of claim 200, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

203 ~~130~~. (New) The device of claim 200, wherein said capsular attachment layer comprises surgical grade polyester velour.

204 ~~131~~. (New) The device of claim 195, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

205 ~~132~~. (New) The device of claim 195, wherein said bioprotective membrane comprises polytetrafluoroethylene.

206 ~~133~~. (New) The device of claim 195, wherein said angiogenic layer comprises polytetrafluoroethylene.

207 ~~134~~. (New) The device of claim 195, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

208 ~~135~~. (New) The device of claim 195, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

209 ~~136~~. (New) The device of claim 208, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

210 ~~137~~. (New) The device of claim 195, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

211 ~~138~~. (New) The device of claim 195, wherein said resistance layer restricts the transport of glucose therethrough.

212 ~~139~~. (New) The device of claim 211, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

213 ~~140~~. (New) The device of claim 195, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

214 ~~141~~. (New) The device of claim 213, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

215 ~~142~~. (New) The device of claim 195, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

53

D

216 215
~~145~~. (New) The device of claim ~~142~~, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

217 195
~~144~~. (New) The device of claim ~~122~~, wherein said enzyme layer contains glucose oxidase.

218 195
~~145~~. (New) The device of claim ~~122~~, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

219 195
~~146~~. (New) The device of claim ~~122~~, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

220 195
~~147~~. (New) The device of claim ~~122~~, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

221 220
~~148~~. (New) The device of claim ~~147~~, wherein said data transmitting apparatus comprises radiotelemetry.

222 195
~~149~~. (New) The device of claim ~~122~~, wherein said device is wholly implantable.

223 222
~~150~~. (New) The device of claim ~~149~~, wherein said device is sized and configured for being wholly implantable subcutaneously.

224 195
~~151~~. (New) The device of claim ~~122~~, wherein said housing is substantially oval-shaped.

225 195
~~152~~. (New) The device of claim ~~122~~, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.

226
~~153~~. (New) A device for measuring glucose in a biological fluid, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operatively connected to said electronic circuit;

b) a sensor operably connected to said electrodes of said housing, said sensor comprising an apparatus for determining the amount of glucose in a biological sample, said glucose determining apparatus operably associated with said electrodes and comprising a membrane impregnated with an oxidase, a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane positioned more distal to said housing than said oxidase impregnated membrane, and an

54

D

angiogenic layer positioned more distal to said housing than said bioprotective membrane,

c) a securing element for securing said device to biological tissue, said securing element composed of a material selected from the group consisting of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

227 154. (New) The device of claim ~~153~~ 226, wherein said securing element comprises a polyester velour.

228 155. (New) The device of claim ~~153~~ 226, wherein said sensor comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

229 156. (New) The device of claim ~~155~~ 228, wherein said wherein said fixation domain further comprises a capsular attachment layer.

230 157. (New) The device of claim ~~156~~ 229, wherein said capsular attachment layer comprises a porous implantable material.

231 158. (New) The device of claim ~~156~~ 229, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

232 159. (New) The device of claim ~~156~~ 229, wherein said capsular attachment layer comprises surgical grade polyester velour.

233 160. (New) The device of claim 153, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

234 161. (New) The device of claim ~~153~~ 226, wherein said bioprotective membrane comprises polytetrafluoroethylene.

235 162. (New) The device of claim ~~153~~ 226, wherein said angiogenic layer comprises polytetrafluoroethylene.

236 163. (New) The device of claim ~~153~~ 226, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

237 164. (New) The device of claim ~~153~~ 226, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

55

D

238 165. (New) The device of claim 153, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

239 166. (New) The device of claim 153, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

240 167. New) The device of claim 153, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

241 168. (New) The device of claim 167, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

242 169. (New) The device of claim 167, wherein said resistance layer restricts the transport of glucose therethrough.

243 170. (New) The device of claim 167, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

244 171. (New) The device of claim 167, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

245 172. (New) The device of claim 167, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

246 173. (New) The device of claim 167, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

247 174. (New) The device of claim 173, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

248 175. (New) The device of claim 167, wherein said enzyme layer contains glucose oxidase.

249 176. (New) The device of claim 153, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

250 177. (New) The device of claim 153, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

251 178. (New) The device of claim 153, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

56

D

179. (New) The device of claim 178, wherein said data transmitting apparatus comprises radiotelemetry.

180. (New) The device of claim 165, wherein said device is wholly implantable.

181. (New) The device of claim 180, wherein said device is sized and configured for being wholly implantable subcutaneously.

182. (New) The device of claim 165, wherein said housing is substantially oval-shaped.

183. (New) The device of claim 165, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.

184. (New) A biological fluid measuring device, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operably connected to said electronic circuit; and

b) a sensor operably connected to said electrodes of said housing, said sensor comprising (i) a bioprotective membrane, and (ii) an angiogenic layer, said angiogenic layer positioned more distal to said housing than said bioprotective membrane; and

c) a member for securing said device to biological tissue, and securing member associated with said housing.

185. (New) The device of claim 184, wherein said securing element comprises one of a material selected from the group consisting of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

186. (New) The device of claim 185, wherein said securing element comprises a polyester velour.

187. (New) The device of claim 184, wherein said sensor comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

188. (New) The device of claim 187, wherein said wherein said fixation domain further comprises a capsular attachment layer.

189. (New) The device of claim 188, wherein said capsular attachment layer comprises a porous implantable material.

263 261
~~190~~. (New) The device of claim ~~188~~, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

264 261
~~191~~. (New) The device of claim ~~188~~, wherein said capsular attachment layer comprises surgical grade polyester velour.

265 257
~~192~~. (New) The device of claim ~~184~~, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

266 257
~~193~~. (New) The device of claim ~~184~~, wherein said bioprotective membrane comprises polytetrafluoroethylene.

267 257
~~194~~. (New) The device of claim ~~184~~, wherein said angiogenic layer comprises polytetrafluoroethylene.

268 257
~~195~~. (New) The device of claim ~~184~~, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

269 257
~~196~~. (New) The device of claim ~~184~~, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

270 257
~~197~~. (New) The device of claim ~~184~~, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

271 257
~~198~~. (New) The device of claim ~~184~~, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

272 257
~~199~~. (New) The device of claim ~~184~~, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

273 272
~~200~~. (New) The device of claim ~~199~~, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

274 272
~~201~~. (New) The device of claim ~~199~~, wherein said resistance layer restricts the transport of glucose therethrough.

275 274
~~202~~. (New) The device of claim ~~201~~, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

276 272
~~203~~. (New) The device of claim ~~199~~, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

58

D

277 276
~~204~~. (New) The device of claim ~~203~~, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

278 272
~~205~~. (New) The device of claim ~~199~~, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

279 278
~~206~~. (New) The device of claim ~~205~~, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

280 272
~~207~~. (New) The device of claim ~~199~~, wherein said enzyme layer contains glucose oxidase.

281 257
~~208~~. (New) The device of claim ~~184~~, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

282 257
~~209~~. (New) The device of claim ~~184~~, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

283 257
~~210~~. (New) The device of claim ~~184~~, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

284 283
~~211~~. (New) The device of claim ~~210~~, wherein said data transmitting apparatus comprises radiotelemetry.

285 284
~~212~~. (New) The device of claim ~~211~~, wherein said device is wholly implantable.

286 285
~~213~~. (New) The device of claim ~~212~~, wherein said device is sized and configured for being wholly implantable subcutaneously.

287 257
~~214~~. (New) The device of claim ~~184~~, wherein said housing is substantially oval-shaped.

288 257
~~215~~. (New) The device of claim ~~184~~, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.

97 94
~~216~~. (New) The device of claim ~~66~~, further comprising a securing element for securing said device to biological tissue.

98 97
~~217~~. (New) The device of claim ~~216~~, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

D

99 98
218. (New) The device of claim 217, wherein said securing element comprises a polyester velour.

100 94
219. (New) The device of claim 66, wherein said capsular attachment layer comprises a porous implantable material.

101 94
220. (New) The device of claim 66, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

102 94
221. (New) The device of claim 66, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

103 94
222. (New) The device of claim 66, wherein said angiogenic layer comprises polytetrafluoroethylene.

104 94
223. (New) The device of claim 66, further comprising a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane located proximal to said angiogenic layer.

105 104
224. (New) The device of claim 223, wherein said bioprotective membrane comprises polytetrafluoroethylene.

106 104
225. (New) The device of claim 223, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

107 104
226. (New) The device of claim 223, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

108 104
227. (New) The device of claim 223, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

109 104
228. (New) The device of claim 223, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

110 94
229. (New) The device of claim 66, further comprising a membrane impregnated with an oxidase located proximal to said angiogenic layer.

111 110
230. (New) The device of claim 229, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

112 111
231. (New) The device of claim 230, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

60

D

112 232. (New) The device of claim 230, wherein said resistance layer restricts the transport of glucose therethrough.

113 233. (New) The device of claim 232, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

114 234. (New) The device of claim 230, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

115 235. (New) The device of claim 234, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

116 236. (New) The device of claim 230, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

117 237. (New) The device of claim 236, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

118 238. (New) The device of claim 230, wherein said enzyme layer contains glucose oxidase.

120 239. (New) The device of claim 66, further comprising a housing that has an electronic circuit and at least two electrodes operatively connected to said electronic circuit, wherein said sensor is operably connected to said electrodes of said housing.

121 240. (New) The device of claim 239, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

122 241. (New) The device of claim 239, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

123 242. (New) The device of claim 239, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

124 243. (New) The device of claim 242, wherein said data transmitting apparatus comprises radiotelemetry.

125 244. (New) The device of claim 66, wherein said device is sized and configured for being wholly implantable subcutaneously.

126 245. (New) The device of claim 66, wherein said housing is substantially oval-shaped.

246. (New) The device of claim 94, wherein said sensor interface tip comprises a dome configuration.

247. (New) The device of claim 246, wherein said sensor interface tip protrudes from said housing.

248. (New) A device for measuring glucose in a tissue of a host comprising a wholly implantable device comprising a sensor comprising an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule, wherein said sensor tip fixation domain further comprises a capsular attachment layer made from surgical grade polyester velour on said sensor.

249. (New) The device of claim 248, further comprising a securing element for securing said device to biological tissue.

250. (New) The device of claim 249, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

251. (New) The device of claim 250, wherein said securing element comprises a polyester velour.

252. (New) The device of claim 248, wherein said sensor tip fixation domain further comprises an angiogenic layer on said sensor.

253. (New) The device of claim 252, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

254. (New) The device of claim 252, wherein said angiogenic layer comprises polytetrafluoroethylene.

255. (New) The device of claim 248, further comprising a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane located proximal to said angiogenic layer.

256. (New) The device of claim 255, wherein said bioprotective membrane comprises polytetrafluoroethylene.

257. (New) The device of claim 255, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

62

D

Appl. No. : 09/489,588
Filed : January 21, 2000

299 296
258. (New) The device of claim 255, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

300 296
259. (New) The device of claim 255, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

301 296
260. (New) The device of claim 255, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

302 301
261. (New) The device of claim 260, said sensor further comprising a membrane impregnated with an oxidase.

303 302
262. (New) The device of claim 261, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

304 303
263. (New) The device of claim 262, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

305 303
264. (New) The device of claim 262, wherein said resistance layer restricts the transport of glucose therethrough.

306 303
265. (New) The device of claim 262, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

307 303
266. (New) The device of claim 262, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

308 307
267. (New) The device of claim 266, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

309 303
268. (New) The device of claim 262, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

310 309
269. (New) The device of claim 268, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

311 303
270. (New) The device of claim 262, wherein said enzyme layer contains glucose oxidase.

312 289
271. (New) The device of claim 248, further comprising a housing that has an electronic circuit and at least two electrodes operatively connected to said electronic circuit, wherein said sensor is operably connected to said electrodes of said housing.

03

D

313 272. (New) The device of claim 312, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

314 273. (New) The device of claim 312, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

315 274. (New) The device of claim 312, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

316 275. (New) The device of claim 315, wherein said data transmitting apparatus comprises radiotelemetry.

317 276. (New) The device of claim 289, wherein said device is sized and configured for being wholly implantable subcutaneously.

318 277. (New) The device of claim 289, wherein said housing is substantially oval-shaped.

319 278. (New) The device of claim 289, wherein said sensor interface tip comprises a dome configuration.

320 279. (New) The device of claim 289, wherein said sensor interface tip protrudes from said housing.

131 280. (New) The device of claim 129, further comprising a securing element for securing said device to biological tissue.

132 281. (New) The device of claim 131, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

133 282. (New) The device of claim 132, wherein said securing element comprises a polyester velour.

134 283. (New) The device of claim 129, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

135 284. (New) The device of claim 129, wherein said angiogenic layer comprises polytetrafluoroethylene.

64

D

285. (New) The device of claim 70, further comprising a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane located proximal to said angiogenic layer.

286. (New) The device of claim 285, wherein said bioprotective membrane comprises polytetrafluoroethylene.

287. (New) The device of claim 285, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

288. (New) The device of claim 285, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

289. (New) The device of claim 285, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

290. (New) The device of claim 285, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

291. (New) The device of claim 70, said sensor further comprising a membrane impregnated with an oxidase.

292. (New) The device of claim 291, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

293. (New) The device of claim 291, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

294. (New) The device of claim 292, wherein said resistance layer restricts the transport of glucose therethrough.

295. (New) The device of claim 294, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

296. (New) The device of claim 292, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

297. (New) The device of claim 292, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

298. (New) The device of claim 292, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

D

299. (New) The device of claim 292, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

300. (New) The device of claim 292, wherein said enzyme layer contains glucose oxidase.

301. (New) The device of claim 70, wherein said housing comprises an electronic circuit and at least two electrodes operatively connected to said electronic circuit, and wherein said sensor is operably connected to said electrodes of said housing.

302. (New) The device of claim 301, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

303. (New) The device of claim 301, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

304. (New) The device of claim 70, wherein said housing comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

305. (New) The device of claim 304, wherein said data transmitting apparatus comprises radiotelemetry.

306. (New) The device of claim 70, wherein said device is sized and configured for being wholly implantable subcutaneously.

307. (New) The device of claim 70, wherein said housing is substantially oval-shaped.

308. (New) The device of claim 70, wherein said sensor comprises an interface tip that has a dome configuration.

309. (New) The device of claim 308, wherein said interface tip protrudes from said housing.

310. (New) The device of claim 47, wherein said sensor comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

311. (New) The device of claim 310, wherein said wherein said fixation domain further comprises a capsular attachment layer.

312. (New) The device of claim 311, wherein said capsular attachment layer comprises a porous implantable material.

Appl. No. : 09/489,588
Filed : January 21, 2000

313. (New) The device of claim 311, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

314. (New) The device of claim 311, wherein said capsular attachment layer comprises surgical grade polyester velour.

315. (New) The device of claim 47, further comprising an angiogenic layer positioned more distal to said housing than said bioprotective membrane

316. (New) The device of claim 315, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

317. (New) The device of claim 315, wherein said angiogenic layer comprises polytetrafluoroethylene.

318. (New) The device of claim 315, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

319. (New) The device of claim 47, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

320. (New) The device of claim 48, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

321. (New) The device of claim 48, wherein said glucose oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

322. (New) The device of claim 321, wherein said resistance layer restricts the transport of glucose therethrough.

323. (New) The device of claim 322, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

324. (New) The device of claim 321, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

325. (New) The device of claim 324, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

67

D

Appl. No. : **09/489,588**
Filed : **January 21, 2000**

41 37
326. (New) The device of claim 322, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

42 41
327. (New) The device of claim 326, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

45 44
328. (New) The device of claim 50, wherein said housing comprising said electronic circuitry is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

46 44
329. (New) The device of claim 50, wherein said housing further comprises an apparatus operatively connected to said electronic circuitry for transmitting data to a location external to said device.

47 46
330. (New) The device of claim 329, wherein said data transmitting apparatus comprises radiotelemetry.

60 31
331. (New) The device of claim 47, wherein said device is sized and configured for being wholly implantable subcutaneously.

61 31
332. (New) The device of claim 47, wherein said housing is substantially oval-shaped.

62 31
333. (New) The device of claim 47, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.

79 67
334. (New) The device of claim 58, wherein said securing member comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

80 67
335. (New) The device of claim 58, wherein said securing member comprises a polyester velour.

83 63
336. (New) The device of claim 87, wherein said sensor further comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

84 83
337. (New) The device of claim 336, wherein said wherein said sensor tip fixation domain further comprises a capsular attachment layer.

85 84
338. (New) The device of claim 337, wherein said capsular attachment layer comprises a porous implantable material.

68

D

Appl. No. : **09/489,588**
Filed : **January 21, 2000**

96 339. (New) The device of claim 84, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

87 340. (New) The device of claim 84, wherein said capsular attachment layer comprises surgical grade polyester velour.

88 341. (New) The device of claim 63, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

71 342. (New) The device of claim 70, wherein said glucose oxidase-containing membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

72 343. (New) The device of claim 71, wherein said resistance layer restricts the transport of glucose therethrough.

73 344. (New) The device of claim 71, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

74 345. (New) The device of claim 71, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

75 346. (New) The device of claim 74, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

76 347. (New) The device of claim 74, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

77 348. (New) The device of claim 76, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

78 349. (New) The device of claim 70, wherein said glucose oxidase-containing membrane comprises a single homogeneous structure.

81 350. (New) The device of claim 63, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

89 351. (New) The device of claim 63, wherein said electronic circuit operably connected to said at least two electrodes is adapted for long-term operation.

69

D

Appl. No. : **09/489,588**
Filed : **January 21, 2000**

352. (New) The device of claim 82, wherein said data transmitting apparatus comprises radiotelemetry.

353. (New) The device of claim 57, wherein said device is wholly implantable.

354. (New) The device of claim 353, wherein said device is sized and configured for being wholly implantable subcutaneously.

355. (New) The device of claim 57, wherein said housing is substantially oval-shaped.

356. (New) The device of claim 57, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.

Appl. No. : **09/489,588**
Filed : **January 21, 2000**

AMENDMENTS TO THE DRAWINGS

New drawing FIG. 1D has been added at the Examiner's suggestion to schematically depict an enzyme membrane comprising a resistance layer 40, an enzyme layer 42, an interference layer 44, and an electrolyte layer 46.

Attachment: New sheet

D